

THE AMES

Astrogram

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AMES RESEARCH CENTER, MOFFETT FIELD

March 12, 2001

on-line at: <http://amesnews.arc.nasa.gov>

Scientists find strong evidence of microbial life on Mars

An international team of researchers has discovered compelling evidence that the magnetite crystals in the martian meteorite ALH84001 are of biological origin.

The researchers found that the magnetite crystals embedded in the meteorite are arranged in long chains, which they say could have been formed only by once-living organisms. Their results were reported in the latest issue of the Proceedings of the National Academy of Sciences (PNAS).

"The chains we discovered are of biological origin," said Dr. Imre Friedmann, an NRC senior research fellow at Ames and leader of the research team. "Such a chain of magnets outside an organism would immediately collapse into a clump due to magnetic forces," he said.

The chains were formed inside organic material whose structure held the crystals together. "The end result looks somewhat like a string of pearls," Friedmann noted. Each magnetite crystal in the chain is a tiny magnet, approximately one-millionth of an inch in diameter. Magnetite is an iron

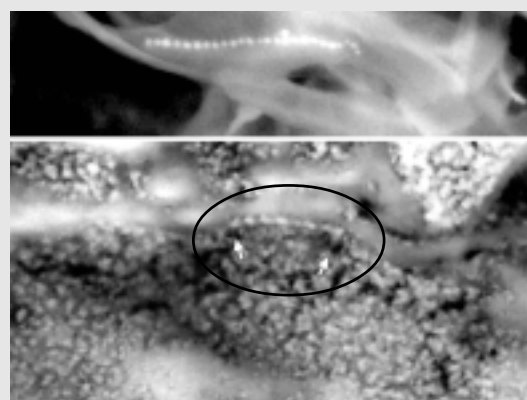
oxide, similar to iron rust.

The chains may have served as 'compasses' for the host magnetotactic bacteria, so named because they navigate with the help of the magnetic crystal chains inside their bodies. The chains were preserved in the meteorite long after the bacteria themselves decayed.

The researchers say the magnetite chains probably were flushed into microscopic cracks inside the martian rock after it was shattered by an asteroid impact approximately 3.9 billion years ago. This cataclysmic event on Mars' surface also may have killed the bacteria. The same, or a later, asteroid impact ejected the rock, now a meteorite, into space.

Another NASA research group, led by Kathie Thomas-Keprta of NASA's Johnson Space Center, reported in the same issue of PNAS

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Upper figure: modern magnetotactic bacteria, one showing a chain of magnetite crystals, as seen in the backscattered scanning electron microscope. Lower figure: magnetite crystals and chains of magnetite crystals in the martian meteorite ALH84001 in the backscattered scanning electron microscope. One conspicuous chain is indicated by the circle. The diameter of a single crystal is approximately one-millionth of an inch.

Congressman Mike Honda visits Ames

On March 23, Congressman Michael Honda (D-San José) and members of his staff visited Ames. Accompanied by Center Deputy Director Bill Berry, the congressman toured FutureFlight Center (FFC), the Neural Engineering Lab and the Numeri-

cal Aerospace Simulation (NAS) Systems Facility. congressman on the latest tests simulating the Los Angeles International Airport control tower. While in the tower, Honda donned a controller's headset to listen in on communications traffic.

At the Neural Engineering Lab, Joe Totah explained the benefits of neural net software for aviation safety and demonstrated the software using the lab's vision dome.

The last stop on the tour was the NAS supercomputer/Vis Lab where William Feiereisen presented the division's work with simulations of carbon nanotubes. In the Vis Lab, Honda manipulated carbon nanotubes in a virtual 3-D environment.

Honda, a former teacher and state assemblyman, previously visited Ames as a speaker at the Space Technology and Education day in July 1999. Currently, Honda is a member of the Transportation Committee with specific duties on the aviation, highway and transit and water resources sub-committees.

Although Honda was fighting a cold during the tour, he was engaged and participated in all of the technology demonstrations. He was impressed with the tour



photos by Jonas Diño

Chris Henze, senior research scientist in the NAS Division (left) demonstrates to Congressman Mike Honda (right, with stereo glasses) a computational steering application on the 3-D immersive work bench. Michael Marlaire (center), Chief of the Development and Communication Office, looks on.

and the cutting-edge technologies being developed here at Ames.

BY JONAS DIÑO



Deputy Center Director William Berry (left) with Congressman Mike Honda (right).

cal Aerospace Simulation (NAS) Systems Facility.

At the FFC, Nancy Dorigi briefed the

Ames sends first hardware to International Space Station

Ames sent its first space hardware to the International Space Station (ISS) on the Space Shuttle Discovery in early March.

The passive dosimeter system (PDS) will



The electronic reader (shown above) that measures accumulated radiation dose in a thermoluminescent detector. The Hungarian Space Office provided the reader to NASA.

serve as a flexible and easy-to-use radiation monitor available for use by any researcher. It also will serve as a useful complement to existing dosimetry used for routine ISS operations. The hardware consists of two kinds of radiation detectors (dosimeters) and an electronic "reader." The dosimeters can be placed anywhere in the ISS to provide an accurate measurement of the radiation at their locations.

"Monitoring radiation exposure is important both to crew health and to future scientific research on the ISS," said PDS payload manager Robert Jackson of Ames Code SFE. "These dosimeters can stay on the station indefinitely, and they will be available to scientists in a variety of fields," he continued.

Understanding the radiation environment on the ISS will help scientists explain experimental results that otherwise might be unaccounted for. The radiation measurements can help scientists determine whether a given effect is due to microgravity, radiation or something else. The PDS will be part of NASA's laboratory support equipment and will be available to all ISS partners' life science investigators.

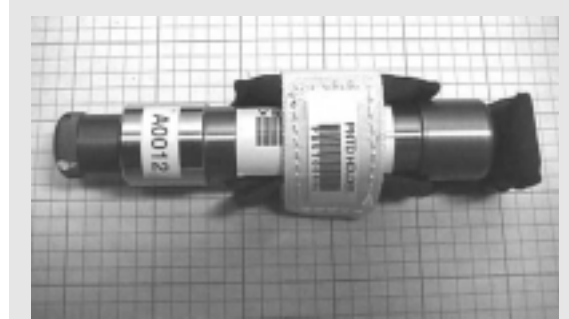
One type of radiation dosimeter is a thermoluminescent detector or TLD. Each TLD, which resembles a fat fountain pen, contains calcium sulfate crystals inside an evacuated glass bulb. These crystals absorb energy from incident ionizing radiation (protons, neutrons, electrons, heavy charged particles, gamma rays and x-rays) as the radiation passes through them. This process results in a steady increase in the energy level of the electrons in the crystal.

To read the accumulated radiation dose, an astronaut aboard the ISS removes the crystal-containing dosimeter from its mea-

surement location and places it into the electronic reader. A component inside the reader heats the crystals. As they are heated, the crystals emit a glow of light proportional to the amount of radiation to which they were exposed. A photomultiplier tube in the reader measures this glow. The reader stores the measured dose on a memory card that can be returned to Earth for further analysis. After the crystals have emitted all the stored energy, they are ready to begin accumulating another dose and the TLD is ready to be reused.

The other dosimeters are plastic nuclear track detectors (PNTDs) — thin sheets of plastic similar to the material used for some eyeglass lenses. As heavy charged ions pass through the PNTDs, the surface becomes pitted with tiny craters. After the detectors are returned to Earth, the plastic is etched to enlarge the craters, which are counted and their shapes and sizes are analyzed using a microscope. This information is used to improve the accuracy of the radiation dose the TLDs have recorded and to improve the estimate of the biological effects of the radiation.

STS-102, which launched March 8 launch, carried the complete set of 48 TLDs and the reader to the ISS, where they will remain indefinitely to support a variety of future scientific experiments. A set of 12 PNTDs will be carried to the ISS on STS-100 later this year. The combined dosimeters will be used to measure radiation as part of the DOSMAP experiment, which is being conducted by the NASA Human Research



Thermoluminescent radiation detector is shown in a PNTD holder that allows it to be placed in different locations inside the International Space Station.

Facility on the ISS. The exposed PNTDs will be returned to Earth by the STS-105 mission for later analysis.

The Hungarian Space Office provided the thermoluminescent detectors, which are a third-generation version of dosimeters that flew on the Russian space stations Salyut 7 and Mir, and on the space shuttle. The Hungarian Space Office also provided the compact radiation reader, which is smaller than a typical shoebox. The PNTDs are provided and analyzed by ERIL Research Company, San Rafael, CA.

Ames has led efforts to verify and certify the dosimeters for safety, and to package them in one of four transport containers, which resemble insulated lunch bags. One container holds a reader and 12 TLDs with associated power and data cables. Two additional kits each hold 18 TLDs. The final kit holds 12 PNTDs and 2 memory cards for the reader.

"This is just the first step in a series of hardware Ames will be sending to ISS to support fundamental biology research," Jackson said.

BY ANN HUTCHISON



Shih receives service award



photo by Dominic Hart

On Feb. 16, John McGraw of the Federal Aviation Administration (FAA), who led the 737 flight controls engineering test and evaluation board, presented an award to K.C. Shih (Ames Code ARH) for his service as chairperson of the challenge team.

Remembrance

Gazlay passes on

Ames has lost a key contributor, enthusiast technician and skilled craftsman with the passing of David N. Gazlay on February 13, 2001. He was just 43 years old.

Gazlay started at Ames in 1975 as a Foothill-De Anza student intern. He completed his internship while working with journeymen in the trade in the structural fabrication section. Upon completion of the intern program, Gazlay worked for Varian Associates for two years before returning to Ames in 1980.

Shortly after he returned to Ames, Gazlay was the technician assigned to a project to develop a model for the inlet vanes for the 80 x 120 wind tunnel. Several years later, he joined a team that developed the frog embryology unit (FEU). Gazlay took great pride in finding solutions to the problems encountered on the hardware. For example, there was a problem in cleaning some tight areas in an assembly and performing an inspection. His responsibility did not include finding a solution for these problems, but on the Saturday that the engineers were working on the solutions, Gazlay went to a gun shop, picked up a few rifle bore brushes on his own and brought them in. He also had figured out a way to perform the required inspection. Gazlay won an Ames Honor Award for his dedication and contributions to the success of this project.

Over the next several years, Gazlay continued to develop his expertise in aircraft sheet metal fabrication, quickly assuming the responsibility of loadmaster for the DC-8 aircraft. As loadmaster, he was involved in the design and fabrication of specialized experiment racks and development of airborne experimental instruments. He had an intimate knowledge of the aircraft. Routinely, experiments had to be ready and loaded onto the aircraft to meet stringent flight schedules, dictated by an international research community, and unloaded with great care for the hardware and collected data immediately upon the return of the plane from deployment. Gazlay would then start the process again, as the DC-8 itself underwent an ambitious modification program to prepare it for an entirely new set of experiments. One time, he had to prepare the aircraft for instruments by cutting a window in the belly of the aircraft. Gazlay assisted with the design and then cut the window, skinned the underside of the aircraft and fastened these skins using over 7,000 flight certified fasteners to meet stringent flight requirements for flow and turbulence.

Gazlay also worked on the Waverider project, a 4.5' long vehicle that would evaluate theories about high-speed flight-testing

and be the best-ever hypersonic waverider vehicle. Gazlay was asked for his design and build input by researcher Marc Murbach.

"I had very little money, crude sketches

and the final product. He recently designed and oversaw fabrication of the centrifuge accommodation module (CAM) project based entirely on verbal requirements and photographs provided by Space



photo by Deborah Wood

David N. Gazlay, far left, poses with other members of the Frog Embryology Unit (FEU) team. Shown with Gazlay from left to right are Kim Wagenbach, Pearl Cheng, John Estrada and Jack Connolly.

on a coffee-stained piece of paper and some odd pieces of cardboard probably from a cereal box showing a possible means of assembly," Murbach said. "Within a week we had the material. A lot of Dave's design comments and improvements were incorporated."

"Dave was one of those people who worked with zeal and passion, and also compassion."

The vehicle is now fully instrumented and awaiting the rocket ride a little later this year. This first flight will be dedicated to Gazlay in honor of his contributions to this project.

During the course of Gazlay's career, his high level of expertise made him a natural leader and a well-respected mentor to his colleagues. He continued to develop and became group leader for the aircraft sheet metal section where he oversaw many successful projects and many that came to fruition through his marketing efforts. On the DeHavilland-8 Lift project, he stepped in for another lead person and was at work until midnight, welding and working on the lift that had to be in the 80 x 120 wind tunnel the next morning. He worked tirelessly on his own time, designing and developing paper models of hardware to confirm his dimensions and make it easier for his employees and customers to envi-

Station Biological Research Project (SSBRP) personnel. Gazlay's last assignment was the development of a master-scheduling program for his entire branch and the FM project manager for SOFIA.

Gazlay was excited about working for NASA. Some say his blood was NASA blue. He was an innovative and creative craftsman with a talent for practical problem solving and dedicated to the Ames and NASA mission. We have lost a great friend and colleague. NASA has lost a highly talented contributor.

A memorial scholarship has been set up in Gazlay's honor. Contributions can be sent to:

Wells Fargo Bank
Third Party Deposit
P.O. Box 5629
Portland, OR 97228

Make checks payable to: David Neal Gazlay Memorial Scholarship Fund, account #0670072370.

The Ames Research Center and American flag were flown at half mast from 10:00 am to 10:15 am on Saturday, February 17, 2001 in honor of David's contributions to NASA. They were presented in a private ceremony to his wife Royanna and family on Tuesday, Feb. 27, 2001 by Deputy Center Director William Berry.

BY DEBBIE WOOD 

Remembrance

Tad Savage: memories of a friend

The Ames Research Center, NASA as a whole and the international space community lost a valuable friend and colleague with the passing of Paul "Tad" Savage from esophageal cancer on Feb. 24, 2001. Tad was 43 years old, and had been at Ames for 16 years at the time of his death.

Savage had a varied career which touched a great number of those at Ames.



photo by Maria Garcia
Tad Savage

As a payload engineer for the Ames Spacelab Life Sciences – 1 (SLS-1) payload, he was responsible for many of the inner workings of this complex payload, on the first Spacelab mission dedicated entirely to research in life sciences. His steady hand and calm demeanor, plus his unassailably cheery attitude, endeared him to the many people he worked with throughout the agency. After the outstanding success of SLS-1, Savage stepped up to the even bigger challenge of managing his own payload – SLS-2. One of the most complex payloads flown to date, SLS-2 pushed the state of the art and through its success – due in large part to Savage's energy, creativity and perseverance – obtained many important research results that had a large influence on the space biology community. Once again, he accomplished his goals through steady, calm leadership, always with an eye toward what mattered most in the payload's success – his team. His work on this groundbreaking payload was rewarded with the NASA Exceptional

Achievement Medal in 1994.

Savage had always had an interest in international relations and their impact on the space program, and was chosen as the leader of the NASA-Mir fundamental biology project. This project, conducted jointly with the Russian space program, was part of the first phase of the development of the International Space Station, where important lessons were learned about how to conduct long-term space research projects. Again, through his integrity and leadership, Savage gained the respect not only of his Ames team but that of his Russian partners. Through the success of his efforts, this work led to an Ames honor award for outstanding group/team achievement in 1997. In the same year, Savage was selected for the highly prestigious James E. Webb Space Administration Fellowship for International Studies and honored in a ceremony hosted by Administrator Goldin.

Although the technical and management portions of his career were very important to Savage, of even greater importance was helping others to achieve career goals. He served for many years as the co-lead of the IDEAS programs at Ames, bringing together young and mid-career level staff from a variety of disciplines for year-long programs in personal and career development. He was actively involved with the outside community in a wide variety of efforts including the Adopt-A-School College Relations Team and served as a recruiter for Ames for most of his career. It's easy to imagine that Savage's personal skills may have convinced quite a few potential applicants that Ames was worth a try!

Savage was a very active sportsman throughout his life and career and could often be seen at lunchtime lifting weights at the gym or running past the wind tunnels with his Ames friends. About the only effort which he led that was less than a stellar success was his "Rat Patrol" softball team at Ames – that is, if success is measured in team victories!

In his final career duties as chief of the Science Payload Operations Branch for the past four years, Savage was known and respected as a leader who always took the time to listen to those in his branch. No matter what the problem was, he always paid close attention and offered good sug-

gestions, and in so doing earned the great admiration of his staff. As personally related



Tad Savage in Space Shuttle simulator.

to his closest Ames friends, his proudest achievements weren't just his pathfinding space payloads, but equally as much, if not more, the help that he gave to his staff and friends throughout NASA. These values were reflected back to him in his final weeks with an incredible outpouring of feelings for Savage, from Headquarters and all the centers he worked with, as well as his many Russian colleagues.

Savage is survived by his wife Donna and son Christopher, and the many in our Ames community who cared for him and called him a friend.

BY GREG SCHMIDT



VPP STAR Tip:

"VPP participants enter into a new relationship with OSHA. In this innovative public/private partnership, cooperation and trust nourish improvements in safety and health, not just at VPP sites, but also beyond the worksite boundaries." ...Federal Register 65:45649-45663

On-site Events

Engineering Evaluation Laboratory hosts open house

The entire Ames community is invited to a day of live demonstrations, self-guided tours and informative discussions about the most unique engineering laboratory at Ames. The open house for the Engineering Evaluation Laboratory (EEL), Code FEE, will



The Impac shock machine provides impact results from dropping test items onto various density pads, producing shock pulses up to 3000g. Howard Menche, lab manager, is shown here operating the shock machine.

be held in the hi-bay of building N-244, March 29, from 10 a.m. - 2 p.m. The EEL is the environmental test facility that has supported both the research and development

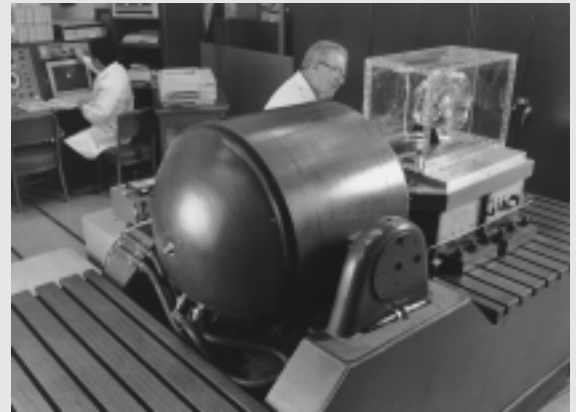
of hardware and the modernization of facilities at Ames for over 33 years.

The EEL was originally known as the Reliability and Quality Assurance (R&QA) Lab, established in 1967 as a test facility to support the Pioneer missions. The original five pieces of equipment included a 200g centrifuge, a vibration table, a shock machine, an altitude/temperature chamber and a humidity/temperature chamber. This provided the basic environmental capabilities for the research and development of Pioneer space hardware and insured reliability and quality assurance to the final flight instruments.

Since that humble beginning, EEL has acquired substantially more equipment and expertise, enhancing and expanding into many areas of engineering to assist in the development and evaluation of hardware and the instrumentation needs of many of the facilities on the center.

Today, in addition to environmental testing, the EEL can also provide large-scale and small-scale strain gaging, high-precision instrumentation for mechanical and thermal quantities, structural testing of mechanical components and systems, modal analysis, specialized calibrations, mass property measurements and data acquisition and analysis.

Lab staff will be on hand to demonstrate and discuss the unique capabilities of the EEL and to explore potential solutions to the



photos by Tom Trower

The Ling vibration table can produce vibration levels equivalent to a space shuttle launch, or to levels matching various mission profiles. Howard Menche, lab manager, is shown here at the vibration table.

engineering, instrumentation, measurement and environmental concerns of customer projects. From the days of providing engineering support on flight instruments flown on Pioneer Venus and the Galileo Probe, to the ultra small strain gaging of serpentine robots or the evaluation of the frictional loads on bearings for the SOFIA telescope door, the EEL can help the Ames community with its engineering test needs.

If you are interested in learning more about the research and development of flight and ground-based hardware, testing in extreme environments and visiting a one-of-a-kind test facility, this open house is for you.

BY JERRY WANG

Scientists find strong evidence of microbial life on Mars

continued from front page

that the magnetite crystals inside the meteorite are similar to those formed by 'modern' magnetotactic bacteria now living on Earth. The team studied only single crystals, however, not the elusive chain-like structures.

Friedmann's team discovered the crystal chains using a technique that enabled them to 'see' the tiny chains inside the meteorite without destroying them. Besides the chain-like formation, the team discovered that individual crystals are of similar size and shape, do not touch each other and that the chains themselves are flexible, further evidence of biological origin.

"Until now, studying life has been like trying to draw a curve using only one data point—life on Earth," said Friedmann. "Now we have two data points to draw life's curve. The next step is to find the remains of the bacteria themselves," he said.

The fact that a small (about 4-pound)

meteorite from a planet contains large numbers of bacteria suggests that such bacteria were widespread on the surface of Mars, according to the researchers. A stone of similar size from Earth would contain many bacteria.

In addition, since magnetotactic bacteria require low levels of oxygen, this finding indicates that photosynthetic organisms, the source of oxygen in the atmosphere, must have been present and active on Mars 3.9 billion years ago.

"Finding evidence of life on Mars is one of the central problems in astrobiology research today," said Dr. Michael Meyer, head of NASA's astrobiology program, which funded the research.

In addition to his fellowship at Ames, Friedmann, who is best known for discovering microorganisms living inside desert rocks, is professor emeritus of biological science at Florida State University. Mem-

bers of the research team included Dr. Jacek Wierzchos (University of Lleida, Spain), Dr. Carmen Ascaso (CSIC, Madrid, Spain) and Dr. Michael Winkelhofer (University of Munich, Germany).

The meteorite ALH84001 was found in the Allan Hills region of Antarctica in 1984 by researchers supported by the National Science Foundation's Antarctic Search for Meteorites Program, a joint effort by the NSF, the Smithsonian Institution and NASA. The Case Western Reserve University in Cleveland manages the program.

Full text of the research paper is available at: <http://www.pnas.org>

Ames is NASA's lead center for astrobiology, the study of the origin, evolution, distribution and future of life in the universe. Ames is the location of the central offices of the NASA Astrobiology Institute, an international research consortium.

BY KATHLEEN BURTON

IPG team reaches large-scale computer milestone

NASA's Information Power Grid (IPG) team achieved a major milestone at the end of December with the successful integrating of the updated SGI Origin 2000, Lomax, into the grid's infrastructure. Lomax, with 512 processors running at 400 megahertz each, is the second large-scale machine to be incorporated into NASA's IPG. After integrating Lomax into the IPG production environment, the team was able to demonstrate its capabilities in conjunction with two other distributed IPG resources (one each at NASA's Langley and Glenn Research Centers), to solve a multi-part aerospace research problem (see figure).

IPG resources Sharp, a 24-processor SGI Origin 2000 at Glenn Research Center in Ohio, and Whitcomb, an 8-processor SGI Origin 2000 at Langley Research Center in Virginia, were used in concert with Lomax to solve complex aerospace geometries. The configurations were calculated using the computer code OVERFLOW, version D (see sidebar). This particular version of OVERFLOW is designed specifically to take advantage of parallel and distributed computing resources by limiting the number of processors that can be used at any one time. Using a small number of processors on three distributed machines is an effective application of under-utilized resources. Using several grid resources for a job reduces turnaround time and creates a distributed, collaborative problem-solving environment. This approach to computing is also more cost-effective.

"This will enable us to calculate a complex aerospace problem much faster by using all three of the machines," explains Arsi Vaziri, IPG deputy project manager.

Data is important too...in addition to demonstrating integration of a large supercomputer into the IPG structure, this milestone illustrates the importance of data transfer between remote resources.

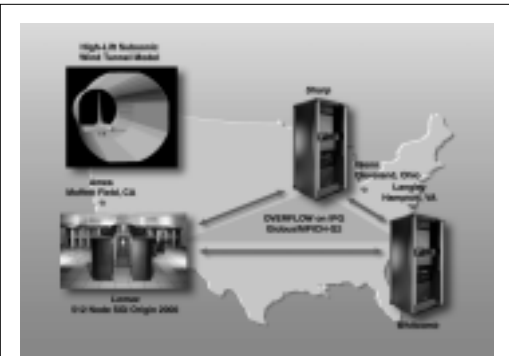
"Our approach to the IPG is geared toward an equal emphasis on data transmission and computational speed," explains Vaziri. Many of NASA's newer research programs rely heavily on cross-center collaboration and IPG provides an economical method for sharing data between colleagues at remote locations.

"Agency-wide programs like ISE (intelligent synthesis environment) are essentially advanced design, or computer design projects for NASA's aerospace enterprise, and that's what we're targeting--a computing environment that enables application domains to work with a large collection of machines, including supercomputers," ex-

plains Bill Johnston, IPG project manager. The Globus middleware package, designed to enable different types of IPG resources to interface with each other, was installed on Lomax with very few software changes.

"Globus enables the IPG team to run easily any computational code and transfer data between Lomax, Sharp and Whitcomb," explains Johnston.

In addition to having the ability to transfer code and data easily, IPG users now have a collection of distributed resources, located at the three NASA centers, to reduce end-to-end turnaround time for aerospace design and simulation problems. The next milestone, scheduled to be met in September 2001, will incorporate an electron microscope located at the University of California at San Diego into the grid's infrastructure to facilitate experiments requiring high data-transfer rates using the



IPG provides aggregated computing in a parallel and distributed fashion. The grid can effectively use underutilized resources, decrease computational turnaround time, support a collaborative problem-solving environment, and provide more cost-effective computing solutions

IPG's high-performance computing systems.

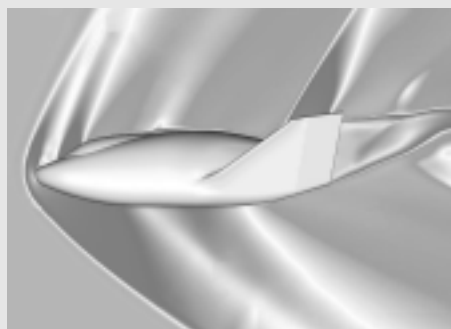
BY HOLLY A. AMUNDSON

OVERFLOW IPG applications

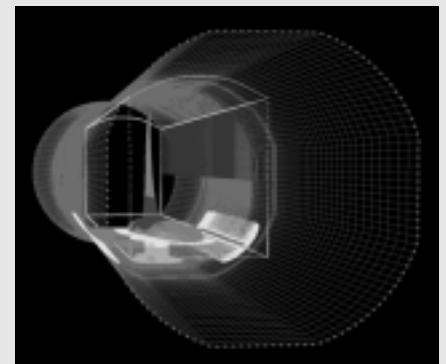
One of the large-scale OVERFLOW applications the IPG team used to demonstrate the successful completion of the December milestone was a Navier-Stokes computational fluid dynamics (CFD) simulation of flow about a generic reusable launch vehicle. The simulation was run using a distributed version of OVERFLOW, version D, which required 215 grids, or computational meshes and about 14 million grid points (see figure below). Without OVERFLOW-D, this application could not have been run on multiple machines. Running this aerospace configuration with the recently integrated 512-processor Origin

2000 verifies that the IPG is a true application environment.

The team also used a wind tunnel flow simulation of a high-lift wing configuration, which required 32 computational grids and nearly nine million grid points. (See figure below). This type of high-fidelity CFD code provides significant gains for the aerospace industry by reducing design-cycle time.



Wind tunnel flow simulation of a wing-body model encompassing 32 zones and 9 million grid points.



Visualization of a generic reusable launch vehicle X-38 flow simulation — 215 zones and 14 million points.

Calendar & Classifieds

Event Calendar

Model HO/HOn3 Railroad Train Club at Moffett Field invites train buffs to visit & join the club in Bldg. 126, across from the south end of Hangar One. Work nights are usually on Friday nights from 7:30 p.m. to 9:30 p.m. Play time is Sunday from 2 p.m. to 4 p.m. For more info, call John Donovan at (408) 735-4954 (W) or (408) 281-2899 (H).

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Samson Cheung at ext. 4-2875 or Lich Tran at ext. 4-5997.

Ames Bowling League, Tuesdays, at 6 p.m. at Palo Alto Bowl. Bowlers needed. POC: Mina Cappuccio at ext. 4-1313 or Carmen Park at ext. 4-1215.

Ames Ballroom Dance Club. Tuesdays: Salsa 3/13, 3/20 & 3/27. 3 levels of classes, from Beg. to Int., 5:15 p.m. - 6:45 p.m. Classes in building 944, the Recreation Center. Women dancers are especially encouraged to join. POC: Helen Hwang at: hwang@dm1.arc.nasa.gov.

Ames Diabetics (AAD), meet twice a month on first & third Wednesdays, 12 noon to 1 p.m., in the Ames Café, far corner of Sun room. Peer support group that discusses news that affects diabetics, both type I and II & exchange experiences in treatment & control & help each other best cope with the disease. No cost, sales people, leader or medical professionals. Attend a meeting or call Bob Mohlenhoff at ext. 4-2523, or email him at bmohlenhoff@mail.arc.nasa.gov.

Ames Child Care Center Board of Directors Mtg. Every other Thursday (check website for meeting dates: <http://acc.arc.nasa.gov>), 12 noon to 2:00 p.m., N269, rm. 201. POC: Katharine Lee, ext 4-5051.

Ames Amateur Radio Club, Mar 15, 12 noon, T28-N (across from N-255). POC: Michael Wright, KG6BFF, at ext. 4-6262. URL: <http://hamradio.arc.nasa.gov>

NFFE Local 997 Union General Mtg, Mar 21, noon to 1 p.m., Bldg. 19/Rm. 2017. Guests welcome. POC: Marianne Mosher at ext. 4-4055.

Native American Advisory Committee mtg, Mar 27, 12 noon to 1 p.m., Ames Café. POC: Mike Liu at ext. 4-1132.

Environmental, Health and Safety Monthly Information Forum, Apr 5, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm 1040. POC: Linda Vrabel at ext. 4-0924.

Nat'l Association of Retired Federal Employees, (NARFE), San Jose Chapter #50, Mtg, Apr 6, at Hometown Buffett, Westgate Mall, 4735 Hamilton Av, San Jose. Prog. & bus. mtg. at 9 a.m., followed by lunch, \$6.27, in a reserved area. Program starts at 9:30 a.m. followed by lunch. POC: Mr. Rod Perry (650) 967-9418 or NARFE 1-800-627-3394.

Ames Contractor Council Mtg, Apr 4, 11 a.m., N-200 Comm. Rm. POC: David Lawrence at ext. 4-6434.

Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov by the Monday following publication of the present issue and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost & found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads.

Housing

3 bd/1.5 ba, 2-story townhouse on Luz Avenue, San José. Freshly painted inside, dishwasher, gas heat, w/w carpeting, outside child play area/large patio. 1 car port. Easy access to H101/680/280. \$295K. Azucena Guzman (408) 559-2881.

NRC senior research associate & spouse seek a furnished 2 bdrm apartment or house, Feb 1 to end July 2001. Interested in buying/leasing a cheap, used car for this period. Sophie Wuerger, email to: s.m.wuerger@keele.ac.uk or phone (+44 1782 752299 or +44 1782 584214) or by fax (+44 1782 583055).

Fully furnished 2 bd/1ba house in Sunnyvale, 15 min. to NASA/Stanford. Avail. Aug 2001 to Aug 2002. Storage, fruit trees & outdoor Jacuzzi w/priv. fence. Gardner, hottub, computer, stereo, TV, dishes & all utensils included in \$2,600 mo. rent. Option to use sporty 1997 Honda del Sol, \$300/mo. Call (408) 733-0304.

Looking for a place to share on a long-term basis, three to five years in the surrounding area of Moffett. Will house sit pets, clean pools, anything that will compensate the high rent. Looking for the first of May and no later than May 15. Call (650) 604-0662.

Transportation

'70 VW convertible classic, original owner, no smog needed; transmission ok; needs work on top & possibly engine. \$1,600. Esther or Art (650) 961-2732.

'72 Mercedes Benz 280 SE (4.5 L, gas engine), 180K mls. Silver and black classic, single owner for 27 years! Sunroof, power windows/doors, leather and wood interior, engine runs well and well maintained. \$2,000 or B/O. David (650) 851-9202.

'89 Toyota Tercel, \$1295. White, 2-door coupe, 127,000 mls. Runs great. Gd exterior. Good, very clean interior. 5-speed manual transmission, A/C, new stereo. Call (408) 248-3680.

'89 Jeep Cherokee Laredo 4x4, 6cyl 4.0 ltr engine in good condition, loaded. Original owner, 148K mls, \$5,000 or B/O. (408) 296-1146

'90 Toyota pickup, deluxe, blue/blue, regular cab, short bed, 4x4, V6, 5 spd manual, bedliner, AC, rblt eng/trans, new clutch. \$5,000. Mike (408) 226-7839 eves.

'96 Nissan 200 SX coupe, black, 5 speed, 140 hp, power everything, sunroof, 70 K \$8,800. Barbara (415) 552-8968.

Miscellaneous

Wanted: wooden bunk bed with mattresses, with full-size bottom bunk. Email: copernicus7@hotmail.com

Vintage Heathkit; SA-2020 antenna tuner with manual, \$175; HM 102 HF power meter w/remote head \$60; IM-16 Solid State voltmeter \$45, AM-2 reflected power/SWR meter, \$30. Call (650) 851-5290 after 6 p.m.

Windsurfer, Alpha Int'l, made in Austria, 5.5 sail, has several foot straps. Comes with trapeze harness, excellent condition. \$350. Call (408)-269-8556 eves.

Beautiful credenza, 20" x 30" x 46", honey-laquer finish, only a few months old, mint cond., will sell for 60% of orig. cost. Matching chair w/armrest, honey-laquer finish, mint condition, will sell for 50% of orig. cost. Call (650) 473-0604.

25 inch color TV, \$85. Zenith, works fine, includes universal remote. Call (408) 248-3680.

King-sized, six-drawer platform bed w/new, top-of-line, pillow-top mattress. \$800. John H, (408) 245-3381.

'99 Civic Si factory spring set \$40. Inexpensive way to upgrade the handling of your DX or EX. Call (650) 851-5290 after 6 p.m.

Dining room table, \$120. Light pine with white tile top. Wood desk with smooth glass top, blue/green. 5 drawers and pull-out writing surface. \$75. Call (650) 949-0793.

Freezer for sale: stand up freezer, almond color, approx 17 cu ft., works fine, \$50. Terry (831) 336-2216.

Can't jog because it's raining? Buy my fitness trampoline, good condition, has handle. \$20. Esther (650) 961-2732.

Fitness trampoline. Foldable, still in box. \$200. Call (415) 826-3041.

Mini motor-home, self-contained. 97K mls on '87 Ford Econoline engine. \$13K or B/O. Call (415) 826-3041.

Lost & Found

Moffett Field Lost and Found may be reached at ext. 4-5416 at any time. Residents and employees at Ames may also use Internet browser at: <http://ccf.arc.nasa.gov/codejp/pages/lostFound.html> to view a list of found property and obtain specific instructions for reporting lost or found property and how to recover found property. Call Moffett Field security police investigations section at ext. 4-1359 or email at: mfine@mail.arc.nasa.gov.

Ames public radio

1700 KHz AM radio -- information announcements & emergency instructions, when appropriate, for Ames employees.

Exchange Information

Information about products, services and opportunities provided as a service to the employee and contractor community by the Ames Exchange Council.

Beyond Galileo (8 a.m. to 2 p.m.)

Stop by and see our new gift shop. New items arriving every day. Sundries on hand for those at-work emergencies, i.e. aspirin, cough medicine, etc..

Café Specials (6 a.m. to 2 p.m.)

March is Nutrition Month. Watch for heart healthy menu items. March 15 St. Patrick's day lunch: corned beef and cabbage, \$5.

Visitor Center Shop (8 a.m. to 4 p.m.)

NASA logo merchandise, souvenirs, toys, gifts and educational items.

Tickets, etc... (8 a.m. to 4 p.m.)

American musical theatre of San Jose 3 Musketees, Sat. Mar 24, 8 p.m. discount tickets \$45. Call for info and prices at ext. 4-6873.

Youth Activities

Babe Ruth baseball signups, ages 13 to 18, at McKelvey Ballpark, one-half block west of El Camino on Miramonte in Mountain View. Feb 28, 6pm to 8pm. Bring birth certificate or military ID for proof of age. Call (650) 966-8027.

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Wkend \$490, midwk \$180 nite. Includes linens, firewood. Call (650) 968-4155 or email DBMcKellar@aol.com

South Lake Tahoe cottage with wood fireplace and hot tub. Rates from \$50 to \$130 per night. Call (650) 967-7659 or (650) 704-7732.

Information Technology Services

Newly reorganized help desk services available

The Applied Information Technology Division (Code JT) is introducing its new help desk--the IT support center (ITSC). The newly re-engineered, centralized help desk provides Ames employees with a single number to call for reporting problems with

ous help desk numbers for these services are no longer valid.

The ITSC is staffed with five Raytheon employees who are trained and experienced in providing excellent customer service. Their goal is to ensure that your problem or request for service is given to the appropriate CodeJT service group in a timely manner. Additionally, ITSC staff will serve as customer advocates to ensure problems and requests are responded to in accordance with Code JT service-level commitments.

The ITSC is located in Bldg. 233, Rm. 131. Business hours are from 7:00 a.m. - 6:00 p.m., Monday through Friday, excluding holidays.

Problems for the above services can also be reported to the ITSC via e-mail at: help@mail.arc.nasa.gov.

You are welcome to visit the ITSC and meet the friendly staff who are ready to provide you with quality customer care!

Please note that ODIN desktop problems should still be directed to the ODIN IntelliCenter at ext. 4-5700.



From left to right, the IT Support Center (ITSC) team: Darrell Jones, Noemi Jenkins, Lena Dragony, Terry Morrow, Regina Williams, Kristine Lam and Michael Nelms.

any of Code JTs information technology services. The ext. 4-2000 number can now be used to report customer problems with business systems services, telephone services, network services, land-mobile radio services, remote access services, desktop video services, central application services and non-ODIN desktop computers. Previ-

Astrogram deadlines

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to: astrogram@mail.arc.nasa.gov on or before the deadline.

Deadline	Publication
Mon, Mar 19	Mon, Mar 26
Mon, Apr 2	Mon, Apr 9
Mon, Apr 16	Mon, Apr 23
Mon, Apr 30	Mon, May 7
Mon, May 14	Mon, May 21
Mon, May 28	Mon, Jun 4
Mon, Jun 11	Mon, Jun 18
Mon, Jun 25	Mon, Jul 2

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